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10/585,175	07/06/2007	Simon Blumel	5367-249PUS	2133

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EXAMINER

SENE, PAPE A

ART UNIT	PAPER NUMBER
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2812

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/585,175	Applicant(s) BLUMEL, SIMON	
	Examiner PAPE SENE	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/29/2006 AND 11/23/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Drawings Objections***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **51 and 52**. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

1. Claim **10** is objected to because of the following informalities: the phrase "the connecting layer" should be "the composition".
2. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims **1-4, 6-13 and 16-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorg (U.S. Patent Application Publication No. 2002/0057057) in view of Bauer (U.S. Patent No. 6,130,448).

1. Referring to claim **1**, Sorg discloses an optoelectronic module (**fig. 2**), comprising: at least one semiconductor component for emitting or detecting electromagnetic radiation (**LED 2, fig. 2, [0046]**), said semiconductor component being electrically connected to electrical lines (**fig. 2, [0049], wherein the electrical lines are the leadframes 5**) having a radiation coupling area (**fig. 2, [0051], wherein the radiation coupling area of the semiconductor component is the radiating area of the LED 2**); at least one optical device assigned to the semiconductor component (**fig. 2, [0046], wherein the optical device is the lens 4**); and a connecting layer made of a radiation-transmissive, deformable material arranged in a gap between the radiation coupling area and the optical device (**fig. 2, [0046], wherein the connecting layer is the resin filling 3**), wherein the optical device and the semiconductor component are fixed relative to one another in such a way that they are pressed against one another and that the connecting layer is thereby squeezed in such a way that it generates a force that strives to press the optical device and the radiation coupling area apart (**fig. 2, [0046], wherein the LED 2 and the lens 4 are fixed relative to one another, and the connecting layer 3 are fixed relative to one another**).

However, Sorg does not disclose that the optoelectronic module comprises a carrier element having electrical connection electrodes.

Bauer teaches an optoelectronic module, comprising: a carrier element having electrical connection electrodes and electrical lines (**fig. 2, Col. 5, Ln. 6-27, wherein the carrier element is the support substrate 24, wherein the electrical connection electrodes are the corresponding traces 34, and the electrical lines are comprised of the clip 36 and the conductive strip 30**); at least one semiconductor component for emitting or detecting electromagnetic radiation (**fig. 2, Col. 5, Ln. 6-12, wherein the semiconductor component is the optical sensor 22**), said semiconductor component being applied on the carrier element (**24**) and being electrically connected to connection electrodes (**34**) of the carrier element (**fig. 2, Col. 6-27, wherein the optical sensor 22 is electrically connected to the corresponding traces 34**); at least one optical device assigned to the semiconductor component (**Col. 5, Ln. 57-65 and Col. 6, Ln. 50-51, wherein the optical device is the lens comprised by window 54**); and a connecting layer made of a radiation-transmissive, deformable material arranged in a gap between the radiation coupling area and the optical device, wherein the optical device and the semiconductor component are fixed relative to one another in such a way that they are pressed against one another and that the connecting layer is thereby squeezed (**figs. 2 and 3, Col. 5, Ln. 63 – Col. 6, Ln. 2 and Col. 9, Ln. 58-67, wherein the connecting layer is the epoxy filling the cavity 52**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the disclosure of Sorg, to further disclose the teaching of Bauer for the purpose of supporting the optoelectronic module (**Col. 4, Ln. 52-58**).

2. Referring to claim **2**, Sorg and Bauer disclose an optoelectronic module as in claim 1, and Bauer further teaches that the connecting layer has a thickness of at least 30 micrometers: 25 to 500 micrometers (**fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 is at least 30 micrometers**).

3. Referring to claim **3**, Sorg and Bauer disclose an optoelectronic module as in claim 2, and Bauer further teaches that the connecting layer has a thickness of greater than or equal to 150 micrometers and less than or equal to 350 micrometers: 25 to 500 micrometers (**fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 is greater than or equal to 150 micrometers and less than or equal to 350 micrometers**).

16. Referring to claim **16**, Sorg and Bauer disclose an optoelectronic module of claim 2, and Bauer further teaches that the connecting layer has a thickness of 100 micrometers: 25 to 500 micrometers (**fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 has a thickness of 100 micrometers**).

4. Referring to claim **4**, Sorg and Bauer disclose an optoelectronic module of claim 1, and Bauer further teaches that the connecting layer has a lacquer, preferably a circuit board lacquer, which is deformable in a cured state (**fig. 2, Col. 5, Ln. 57 – Col. 6, Ln. 2, wherein the epoxy has a circuit board lacquer, which is suitable as a protective lacquer for printed circuit boards**).

6. Referring to claim **6**, Sorg and Bauer disclose an optoelectronic module as in claim 1, and Sorg further discloses that a refractive index of the connecting layer is adapted to a refractive index of a material of the semiconductor component that adjoins the connecting layer (**fig. 2, [0017] and [0046], wherein the refractive index of the resin filling 3 is adapted to the refractive index of the LED 2, which adjoins the resin filling 3**).

7. Referring to claim **7**, Sorg and Bauer disclose an optoelectronic module of claim 1, and Sorg further discloses that the optical device has refractive and/or reflective elements (**fig. 2, [0046], wherein the lens 4 is the optical device**).

8. Referring to claim **8**, Sorg and Bauer disclose an optoelectronic module as in claim 1, and Sorg further discloses that the semiconductor component is a luminescence diode component (**fig. 2, [0046], wherein the LED 2 is the semiconductor component**).

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9. Referring to claim **9**, Sorg and Bauer disclose an optoelectronic module as in claim 1, and Sorg further discloses that the semiconductor component is a surface-mountable component (**fig. 2, [0014] and [0026]**).

10. Referring to claim **10**, Sorg discloses a method for producing an optoelectronic module (fig. 2) comprising the steps of: providing a semiconductor component for emitting or detecting electromagnetic radiation(**LED 2, fig. 2, [0046]**), said semiconductor component having a radiation coupling area (**fig. 2, [0051], wherein the radiation coupling area of the semiconductor component is the radiating area of the LED 2**); providing an optical device (**fig. 2, [0046], wherein the optical device is the lens 4**); electrically connecting the semiconductor component to electrical lines (**fig. 2, [0049], wherein the electrical lines are the leadframes 5**); mounting the optical device above the radiation coupling area of the semiconductor component (**fig. 2, [0046], wherein the optical device is the lens 4**); and prior to mounting the optical device, providing a curable and - in a cured state – radiation - transmissive and deformable composition at least over the radiation coupling area of the semiconductor component, wherein the applied composition is at least partly cured or let to be cured (**fig. 2, [0049], wherein the lens 4 is mounted prior to providing the resin material 3, whose composition is let to be cured**), and wherein the optical device and the semiconductor component are fixed relative to one another in such a way that they are pressed against one another and thereby that the composition is squeezed in such a way that it generates a force the composition strives to press the optical device and the radiation coupling area apart (**fig. 2, [0046], wherein the LED 2 and the lens 4 are fixed relative to one another, and the filling resin 3 are fixed relative to one another**).

However, Sorg does not disclose that the optoelectronic module comprises a carrier element having electrical connection electrodes.

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Bauer teaches a method for producing an optoelectronic module comprising the steps of: providing a carrier element having electrical connection electrodes and electrical lines (**fig. 2, Col. 5, Ln. 6-27, wherein the carrier element is the support substrate 24, wherein the electrical connection electrodes are the corresponding traces 34, and the electrical lines are comprised of the clip 36 and the conductive strip 30**); providing a semiconductor component for emitting or detecting electromagnetic radiation (**fig. 2, Col. 5, Ln. 6-12, wherein the semiconductor component is the optical sensor 22**), said semiconductor component providing an optical device (**figs. 2 and 3, Col. 5, Ln. 57-65 and Col. 6, Ln. 50-51, wherein the optical device is the lens comprised by window 54**); applying the semiconductor component on the carrier element and electrically connecting the semiconductor component to the connection electrodes (**fig. 2, Col. 6-27, wherein the optical sensor 22 is electrically connected to the corresponding traces 34**); mounting the optical device above the semiconductor component (**figs. 2 and 3, Col. 5, Ln. 57-65 and Col. 6, Ln. 50-51, wherein the optical device is the lens comprised by window 54**); and providing a curable and - in a cured state – radiation - transmissive and deformable composition at least over the semiconductor component (**Col. 5, Ln. 57-65 and Col. 6, Ln. 50-51, wherein the composition is the epoxy filling the cavity 52**), wherein the applied composition is at least partly cured or let to be cured, and wherein the optical device and the semiconductor component are fixed relative to one another in such a way that they are pressed against one another and thereby that the composition is squeezed in such a way that it generates a force the composition strives to press the optical device and the radiation coupling area apart (**figs. 2 and 3, Col. 5, Ln. 63 – Col. 6, Ln. 2 and Col. 9, Ln. 58-67, wherein the composition is the epoxy filling the cavity 52**).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the disclosure of Sorg, to further disclose the

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teaching of Bauer for the purpose of supporting the optoelectronic module (**Col. 4, Ln. 52-58**).

11. Referring to claim **11**, The method of claim 10, and Bauer further teaches that the composition is applied in the form of a layer having a thickness of at least 30 micrometers: 25 to 500 micrometers (**fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 is at least 30 micrometers**).

17. Referring to claim **17**, Sorg and Bauer disclose a method of claim 11, and Bauer further teaches that the composition is applied in the form of a layer having a thickness of at least 100 micrometers: 25 to 500 micrometers (**fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 has a thickness of 100 micrometers**).

12. Referring to claim **12**, The method of claim 11, and Bauer further discloses that the composition is applied in the form of a layer having a thickness of greater than or equal to 150 micrometers and less than or equal to 350 micrometers: 25 to 500 micrometers (**fig. 2, Col. 5, Ln. 57-67 and Col. 9, Ln. 58 – Col. 10, Ln. 11, wherein the thickness of the epoxy filling the cavity 52 is greater than or equal to 150 micrometers and less than or equal to 350 micrometers**).

13. Referring to claim **13**, The method of claim 10, and Bauer further teaches that the composition has a lacquer, preferably a circuit board lacquer, which is deformable in a cured state (**fig. 2, Col. 5, Ln. 57 – Col. 6, Ln. 2, wherein the epoxy has a circuit board lacquer, which is suitable as a protective lacquer for printed circuit boards**).

5. Claims **5, 14 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorg (U.S. Patent Application Publication No. 2002/0057057) in view of Bauer (U.S. Patent No. 6,130,448), as applied to claims 1-4, 6-13 and 16-17, in further view of Nakagawa (U.S. Patent No. 5,556,809).

5. Referring to claim **5**, Sorg and Bauer disclose an optoelectronic module as in claim 1. However, they do not disclose that a surface of the carrier element is at least partly coated for protection against external influences with a material that is also contained in the connecting layer.

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Nakagawa teaches an image sensor device, wherein a surface of the carrier element is at least partly coated for protection against external influences with a material that is also contained in the connecting layer (**fig. 8, Col. 1, Ln. 54-59 and Col. 13, Ln. 40-48, wherein the material that is also contained in the connecting layer, is the transparent protection layer (66, 6) made of resin**).

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify the disclosure of Sorg and Bauer, and further disclose the teaching of Nakagawa, for the purpose of protecting the semiconductor component (**Col. 1, Ln. 54-59, Nakagawa**).

14. Referring to claim **14**, Sorg and Bauer disclose a method as in claim 10. However, they don't disclose that the composition is applied at least to a part of a surface of the carrier element for protection against external influences.

Nakagawa teaches an image sensor device, wherein a composition is applied at least to a part of a surface of the carrier element for protection against external influences (**fig. 8, Col. 1, Ln. 54-59 and Col. 13, Ln. 40-48, wherein the composition is the transparent protection layer (66, 6) made of resin**).

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify the disclosure of Sorg and Bauer, and further disclose the teaching of Nakagawa, for the purpose of protecting the semiconductor component (**Col. 1, Ln. 54-59, Nakagawa**).

15. Referring to claim **15**, Sorg, Bauer and Nakagawa disclose a method as in claim 14, and Nakagawa further teaches that the composition is applied to the radiation coupling area and to the surface of the carrier element in a single method step (**fig. 8, Col. 1, Ln. 54-59 and Col. 13, Ln. 40-48, wherein the composition is the transparent protection layer (66, 6) made of resin**).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAPE SENE whose telephone number is (571)270-5284. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on (571)272-2194. The

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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PAPE SENE/
Examiner, Art Unit 2812

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Examiner, Art Unit 2812

/Scott B. Geyer/
Primary Examiner, Art Unit 2812